SCOPE OF SERVICES
Mounds Lake Reservoir

DLZ anticipates that the following additional services shall be performed on a time and materials basis:

1. Yield Analysis

During the preliminary analysis, it was determined that the Anderson Dam can provide a firm yield of 48 MGD with a normal pool elevation of 870 ft and a firm yield of 57 MGD at a pool of 875 ft. Modeling and analysis showed these yield figures can be anticipated 100% of the time based on 62 years of contiguous inflow data for the White River for Water Years 1932-1993. These years included several drought periods.

Additional studies will include the following:
The effect of pool level on yield and reservoir level fluctuations for specified pool levels (maximum of 2 or three). The additional impacts if a specific demand (maximum of 2) is imposed on a daily basis.
The results will be summarized and presented in tables and figures.

COST ESTIMATE THIS TASK: $22,000.00

2. Social, Environmental, and Regulatory Investigation and Coordination.

Environmental Justice. DLZ will review the 2010 census data and any existing socio-economic mapping for potential Environmental Justice concerns. Socio-economic data will be reviewed to finite levels to determine where populations of minority and/or low income persons may be concentrated and evaluate the impact on these neighborhoods for the various flooding scenarios. From this review DLZ will make an initial determination of impacts.

Archaeology. DLZ will hire a sub-consultant (see Task 2a scope and cost) with expertise in cultural resources that is pre-qualified to initiate coordination with the Indiana Division of Historic Preservation and Archaeology regarding the location of known cultural resource sites and structures within the project area that may be impacted. This effort will involve a records search and characterization of known sites, as well as discussion regarding the level of investigation effort required for each site at a later phase. The extent and relative elevation of the burial grounds at Mounds State Park needs to be confirmed so potential impacts of the proposed reservoir pool elevations can be determined. The sub-consultant will also coordinate with the State Historic Preservation Office (SHPO) to determine requirements in the NEPA clearance phase of the project for any Phase II investigations that may be required.

Social, Economic, and Environmental Resource Investigations. Early coordination will be performed with all relevant Federal agencies regarding social, economic, and environmental (SEE) issues, including U.S. Fish and Wildlife Service (FWS), U.S. Army Corps of Engineers (Corps), U.S. Environmental Protection Agency (EPA), Natural Resource Conservation Service (NRCS), Federal Emergency Management Agency (FEMA), Federal Highway Administration (FHWA), Federal Aviation Administration (FAA), and others identified during the project. The level of detail of the resource investigations during this phase will only be to the level needed for DLZ to understand what exists or may exist in the project area and allow for more detailed scoping of future phase resource investigations for the project. Specific resources/issues for which coordination and investigation will occur include, but are not limited to:

- Wetlands and other waters of the United States
- Protected plant and animal species
- Farmlands
- Floodplains
- Forests
- Parks and other public and recreation lands
- Land use
- Air quality and noise
- Terrestrial ecology
- Aquatic ecology
- Hazardous materials
- Cultural resources

Some resources will require more detailed investigation due to the likelihood of impacts of the proposed project, regulatory requirements, and need to understand requirements for future phase investigations and mitigation. FWS will be contacted to begin early coordination for threatened and endangered species within the project area. Of noted concern are five Federally listed mollusks (3 endangered and 2 candidate species) and the endangered Indiana bat. Discussions will include possible field survey requirements for determining whether the species are present in the proposed project area and addressing potential mitigation strategies. All Federal agencies will be contacted requesting comments they have on the project at this early, pre-NEPA stage, known resources under their jurisdiction, potential permitting requirements, and suggested submittals about the project to allow them to make informed decisions. Coordination will also occur with relevant state and local agencies on SEE resources, including Indiana Department of Natural Resources (IDNR), Indiana Department of Environmental Management (IDEM), Indiana Department of Transportation (INDOT), Indiana State Department of Agriculture (ISDA), Indiana Historical Bureau (IHB), and IDNR Division of Historic Preservation and Archaeology.

Agency Coordination. DLZ will begin full coordination with all Federal agencies to determine which would be the lead agency during the NEPA phase (which is assumed to require an Environmental Impact Statement [EIS]) as well as which agencies would be potentially co-lead or cooperating agencies. This will assist in determining what information the lead agency will require from all cooperating agencies as well as establish which agency's regulations/guidelines will need to be followed for the EIS. The lead agency will also assist in identifying other Federal, state, and local agencies and Tribes that may have an interest or role in the proposed action and allow them time to work through roles and prepare any Memoranda of Understanding (MOU). This work is considered early scoping and will not include publication of a Notice of Intent (NOI) for the EIS.

DLZ will coordinate with state agencies with jurisdiction to determine the types of mitigation and potential mitigation sites required to compensate for the impacts associated with habitat loss due to construction of the proposed dam. DLZ will coordinate with Indiana regulatory agency representatives, and it is assumed that the agency personnel will be at a level within the agencies that they can speak for the agency at this phase of the project and keep commitments agreed upon during this phase of the project if the project proceeds to the permitting phase in the future. DLZ will also review fish migration/passage requirements per Indiana statute and determine if it applies to this project. The review will include only a cursory level review of fish passage options, species to consider, and potential benefit to these species if fish passage is provided. This task will also include the collection of data on all county drains within the project area, including which drains have easements controlled by a drainage board and would therefore be ineligible for stream mitigation. DLZ will review the Anderson Airport Layout Plan (ALP) to determine potential impacts to future airport expansion plans and operation of the existing airport. DLZ's coordination efforts will include telephone and e-mail correspondence regarding resources impacted and potential mitigation.

Mitigation Investigation. Following this coordination, DLZ will research potential mitigation sites (primarily for ecological resources consistent with state guidelines) within the agreed upon radius from the project site, assumed to be 10 miles or less. DLZ will review existing information about the potential mitigation sites, including soil surveys, National Wetland Inventory maps, USGS quadrangle maps, aerial photography, and other information readily available or provided by Client or resource agencies. DLZ will identify candidate sites on a map that will be the figure for the final report and provide this to the state agencies and the Client. Sites will be prioritized by Anderson and/or the agencies for field verification by DLZ. Following the identification of candidate sites, field verification of remote sensing information for the agreed upon locations will be performed, over a period not to exceed four (4) days. Sites will be viewed from public rights-of-way or easements. If access

to the property is desired, this will be coordinated and secured from the landowner by Owner. The intent of the field visits is to verify existing conditions such as ground cover, topography, soils, etc. and allow for a determination as to whether the property may be suitable for mitigation of one or more regulated resources. The investigations do not include wetland delineations, T&E surveys, geotechnical investigations, surveying, or other similar work not specifically included in this phase. Following the field visits, DLZ will prepare a report that summarizes the findings of each site and a preliminary ranking of HIGH, MEDIUM, or LOW for its suitability for one or more regulated resource. DLZ will include for each site other items needing further investigation at later phases to verify mitigation suitability. If enough information is available, a summary of the mitigation requirements for each affected resource and an associated cost estimate will also be provided based on DLZ's experience for similar work. The map prepared for the previous report will be updated to include rankings of the sites consistent with the body of the report. If GIS information regarding property ownership, assessed value, parcel lines, etc. is readily available, this information will be included for all properties. DLZ will submit the report to Anderson and the resource agencies for review and comment and provide one round of revisions to the report and map. It is expected that once the resource agencies agree with the findings included in the report that this will be the first step in negotiating the mitigation requirements should the project proceed to the NEPA clearance and/or permitting phase.

Meetings and Coordination. Meetings will be required to obtain information and allow for dialogue with the various agencies. DLZ anticipates that up to four meetings will be required in the Anderson/Indianapolis area. Attempts will be made to maximize meeting efficiency by coordinating each meeting with multiple agencies with similar concerns. Additional coordination is anticipated via telephone, mail, and e-mail correspondence.

Task Deliverable. A summary scoping report will be prepared that includes an explanation of all resource investigations and agency coordination. The report will include a description of the data collection effort, coordination performed, assessment of potential impacts and quantities of impacts to resources, preliminary results of agency coordination, likely mitigation requirements for various resources, additional investigations required at a future phase for various SEE resources, and other information deemed relevant by DLZ. The report will also summarize the results of the cultural resource investigation performed by Ball State University (see Task 2a) and include appropriate figures and tables.

COST ESTIMATE THIS TASK: $92,200.00 (not including sub fee below)

2a. Cultural Resource Investigation and Scoping (Sub-consultant: Ball State University)

DLZ will coordinate the activities of the sub-consultant from Ball State University (BSU) and assist them to complete their scope of work. The goal of the archaeological investigation for this phase is to perform coordination with the Indiana Division of Historic Preservation and Archaeology and SHPO to identify known sites within the project Area of Potential Effect (APE) and perform a search of existing records to make a determination of what effort will be required for any Phase II investigations that may be required in a later phase. At the conclusion of this phase, it is expected that information will be available to scope the archaeological investigation (Phase I and II) for the NEPA phase and have general understanding and agreement on what will be required. The BSU scope of work by sub-consultant attached as Exhibit A.

COST ESTIMATE THIS TASK: Ball State University: $29,461.00

3. Geotechnical (Borings at Proposed Dam Site/Reservoir Pool Site)

In order to develop a better understanding of the subsurface conditions that will influence the proposed dam design, construction, and operation, it is proposed that six test borings be drilled at the site in order to acquire preliminary site-specific information. Three of the borings would be drilled along the proposed dam centerline at the bottom of the existing valley. The remaining three borings would be drilled at the bottom of the existing valley, in the area to be inundated by the reservoir pool. For the purposes of the cost estimate, it was assumed that bedrock would be encountered at a depth of 100 feet at each boring location.

Soil and rock samples will be collected from the test borings, and basic laboratory index testing will be performed to help quantify the soil parameters. Final boring logs will be prepared that will assist in beginning to establish the subsurface stratigraphy. A preliminary evaluation of seepage through the foundation of the proposed dam will be performed to help determine if a foundation cutoff wall will be needed. The results will be documented in a brief letter report.

The dam and pool area are expected to intersect several formations of limestone and dolomite bedrock. These bedrock types can be subject to karst formations, in which fractures and joints in the bedrock widen as a result of the dissolution of the bedrock. If bedrock cores indicate the presence of karst features, it will be recommended that future studies include a more in-depth geological investigation in order to evaluate the possible affect of these features on the project. However, costs associated with this more in-depth geological investigation have not been included in this task's cost estimate.

COST ESTIMATE THIS TASK: $52,600.00

4. I-69 over White River Bridge Raising/ Replacement Feasibility

The proposed project will consist of a preliminary evaluation for the feasibility of raising the grade of I-69 over the White River in Delaware County, Indiana to create the largest potential backwater possible at the structures. The need of such a study is due to a proposed dam planned on the West Fork of the White River east of the City of Anderson. The proposed dam will result in the I-69 twin bridges over the White River to be within the backwater pool of the dam. The proposed profile grade of I-69 will need to provide for a 1-foot of freeboard over the 100-year flood elevation in the backwater pool of the dam. It is estimated that the low chord of the bridges will have to be raised a minimum of 5 ft. It is anticipated that the limits of the study will begin approximately 1,250 feet south of the bridge and end 950 feet north of the bridge for a total length of 2,600 feet including the bridge.

The feasibility study will include the following roadway and bridge items:

Develop a preliminary alignment and profile grade along I-69 that maximizes the grade change at the bridges over the White River. The new profile will be developed using the existing plans for construction of the bridge, Contract Number R-21607. No field survey will be performed for this study. If it is determined that topographic survey is required, it will be considered additional services. Preliminary alignments and profiles will also be developed for SR 67 and SR 32 interchange ramps required to match the grade change along I-69.

Develop a preliminary plan drawing showing limits of the proposed pavement replacement required to raise the grade along I-69 and the ramps for SR 67 and SR 32.

Develop quantity calculations and an order of magnitude cost for raising the roadway.

The feasibility study will investigate replacing the existing bridges with new structures on the same alignment. The replacement structures will have the same lane configuration as the existing and the shoulder widths will be upgraded to current Indiana Design Manual standards. The length of the proposed structures will be based on using the existing structure length and increasing that length by extending the existing 2:1 spill slopes. No hydraulics or economical analysis will be performed. Alternate span configurations will be evaluated to minimize the superstructure depth. An order of magnitude cost will be prepared based on the resulting bridge square footage area.

COST ESTIMATE THIS TASK: $12,000.00

5. Complete survey of strategic locations affecting pool height

There are items along the proposed pool's edge whose elevations will be critical in establishing baseline costs for the project (i.e. at what level does the Chesterfield wastewater treatment plant need a levee for protection; at what level does the airport runway need a level of protection; at what level are specific sewer lift stations compromised, etc.). A maximum of 5 days of surveying time should be needed to determine the lowest ground elevations around these structures.

COST ESTIMATE THIS TASK: $5,500.00

6. Evaluate the effect of the Anderson Reservoir on the Chesterfield and Yorktown wastewater treatment plants

Complete a feasibility study to determine the effect of the Anderson Reservoir on the Chesterfield and Yorktown wastewater treatment plants (WWTP). The feasibility study will evaluate the effect of the new pool heights on the WWTP's that will be on the shoreline of the reservoir and no longer discharging to a riverine body. The study will evaluate the effect on the NPDES permits of each WWTP based on meetings with IDEM; evaluate new flood elevations and their effect on the WWTP operation. Once any changes to the discharge limits are identified the study will focus on the operations of each WWTP and their ability to meets the revised limits. If the WWTP cannot meet the revised limits recommendations will be made to add infrastructure to allow them to meet the revised discharge limits along with an associated order of magnitude cost.

COST ESTIMATE THIS TASK: $ 25,100.00

7. Dam Flood Routing and Costs Estimates

Perform hydraulic routing of the Probable Maximum Flood (PMF) event through the reservoir and dam for two selected pool levels and estimate the spillway/dam configurations required for these pool levels. Complete preliminary estimates of construction costs for the dam/spillway for these two pool levels.

COST ESTIMATE THIS TASK: $ 28,000.00

8. Final presentation/Progress Meetings

DLZ will complete the final study report with findings and recommendations. Five (5) paper copies and one (1) electronic copy of the report will be provided

to the client. This task will also include up to five meetings with the client (and public if so desired) to provide a final presentation of the study, findings and recommendations. DLZ will also carry out up to three status update meetings during the study.

COST ESTIMATE THIS TASK: $20,600

Note that the costs listed for the above items are estimates within the overall agreed to tasks. These monies may be shifted within the tasks as required but shall not exceed overall agreement extension amount of $287,461.00.

Specific design services to be performed for any specific capital improvement project that the City wishes DLZ to complete shall be negotiated separately and shall be executed as Additional Services.

It is presumed that this scope of services will be inserted into a contract document and, therefore, is not intended to be a stand-alone item.